



PRECAST CONCRETE BOX CULVERTS FIELD SECTION 1049

1049.1 SCOPE. To establish procedures for the inspection, acceptance, and reporting of precast concrete box culverts.

1049.2 APPARATUS.

- (a) Rule with suitable graduations to accurately measure the material to be inspected.
- (b) OK - MoDOT stamp.
- (c) Weather resistant marking materials.

1049.3 PROCEDURE. Acceptance of precast concrete box culverts is to be based on the inspection of materials being incorporated into the sections, compressive tests on cured concrete cylinders or cores taken from the wall of a section, and inspection of the finished section, including amount and placement of reinforcement.

1049.3.1 Inspection and reporting of coarse aggregate, fine aggregate, cement, fly ash shall be as described in [Field Sec 1026](#) of this Manual. The concrete mix design has a restriction that a minimum of 564 pounds [335 kg] of cement per cubic yard [meter] is required. Welded wire fabric shall be sampled in accordance with [Field Sec 1036](#) of this Manual.

1049.3.1 Compressive tests may be made on either standard rodded concrete cylinders or cylinders compacted and cured in a similar manner to the sections under test in accordance with AASHTO T 23 or, at the option of the manufacturer, on cores drilled from the wall of the sections in accordance with AASHTO T 280. Compressive tests are to be performed at the fabricating plant unless questionable results are being obtained, in which case the cylinders or cores may be submitted to the Laboratory. SiteManager shall be used to create a sample record for submitting cylinders or cores to the Laboratory.

1049.3.2 The sections are to be inspected for amount and placement of welded wire fabric. The amount and placement of welded wire fabric is to be as specified in AASHTO M 259 or M 273 as applicable.

1049.3.3 The finished sections are to be examined for conformance to dimensions, workmanship, and marking. All permissible variations in dimensions and rejection criteria for workmanship are specified in AASHTO M 259 or M 273. Each section shall be marked as follows by the manufacturer by indenting into the concrete or painting on with waterproof paint.

- (a) Box section span, rise, table number, design earth cover, and specification designation.
- (b) Date of manufacture.
- (c) Name or trademark of the manufacturer.



- (d) Each section shall be clearly marked by indentation on either the inner or outer surface during the process of manufacturer so that the location of the top will be evident immediately after the forms are stripped. In addition, the word "top" shall be lettered with waterproof paint on the inside top surface.

1049.3.3.1 Accepted sections are to be marked with "OK-MoDOT" by the inspector. Rejected sections are to be marked with a single vertical mark, near the manufacturers marking and shall be made with weather resistant marking material.

1049.3.4 Procedures for submitting special or modified designs are described in Specification Sec 1049. All special designs or changes not covered by the specifications for units being inspected off of project limits are to be submitted to the State Project Operations Engineer with a copy of all documentation also sent directly to the State Bridge Engineer, for approval prior to manufacture. Approval of a special design for one job does not constitute approval for the next job. Each is to be handled separately. Unless otherwise documented as approved, any modification of a unit, other than constructing a box unit exactly as described in the specifications, is considered a special design, including any pipe cutouts or drainage holes to be made in the unit for any reason, whether prior to, during, or after final placement on site. Any special or modified designs submitted for approval must have been reviewed and sealed by a professional engineer, registered in Missouri, and representing the contractor or producer.

1049.3.4.1 If reinforcing bars are proposed in lieu of the welded wire fabric listed in AASHTO, it is considered to be a special design.

1049.3.4.2 If end sections are proposed to be constructed other than by the MoDOT Standard Plans for cast-in-place culverts, it is considered to be a special design. Calculations and other proof of equal or better design must be submitted with the request.

1049.4 SAMPLE RECORD. The plant inspector located at the concrete proportioning plant shall create a SiteManager sample record for each day's pour documenting the class of concrete poured and the units manufactured from that pour. The name of the manufacturer must be shown.

1049.4.1 Finished sections shall be reported through SiteManager. The following information is to be included on the free form template, in addition to that normally required for a sample record:

- (a) Quantity: Length of box culvert, in feet or meters.
- (b) Date of production.
- (c) AASHTO Designation or Special Design Approved [Date].
- (d) Design earth cover height.

